

# NIELDS, LEMACK & DINGMAN

INTELLECTUAL PROPERTY LAW - PATENTS, TRADEMARKS & COPYRIGHTS

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August 26, 1998

Box Patent Applications  
Commissioner of Patents and Trademarks  
U.S. Patent and Trademark Office  
Washington, DC 20231

SUBJECT: Breakaway Utility Pole  
Our Reference: COTE/971/US

Dear Sir:

Enclosed is a patent application, including formal papers, as follows:

Applicant: Armand Cote

Title: Breakaway Utility Pole

Number of Pages of Specification: 8; Claims: 3; Drawings: 5; Declaration and Power of Attorney; Verified Statement Claiming Small Entity Status

Filing Fee Calculation (Small Entity):

Basic Fee:	\$ 395.00
Additional Fees:	
Total number of claims in excess of 20: 0 x \$11.00:	\$ 0.00
Number of independent claims in excess of 3: 0 x \$40.00:	\$ 0.00
TOTAL FILING FEE:	\$ 395.00

Jc542 U.S. PTO  
09/140049  
08/26/98

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If for any reason this application is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned in Westborough, Massachusetts, (508) 898-1818.

A check in the amount of \$395.00 for the filing fee is enclosed. If any payment during prosecution is found to be insufficient or if any overpayment is found, please charge any deficiency or credit any overpayment to my deposit account number 04-1130. A copy of this letter is enclosed for use by the Finance Branch in the event that it is necessary to make any charge or credit to my deposit account.

Kindly acknowledge receipt of the foregoing by returning the enclosed self-addressed postcard.

Very truly yours,

  
Brian M. Dingman

BMD:jam  
Enclosures

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APPLICATION  
FOR  
UNITED STATES LETTERS PATENT

Be it known that I, Armand Cote, residing at 28 Mayflower Circle, Leicester, Massachusetts 01524, and being a citizen of the United States of America, have invented a certain new and useful

BREAKAWAY UTILITY POLE

Applicant: Armand Cote  
For: Breakaway Utility Pole

#### Cross Reference to Related Application

This application is a continuation in part of Provisional application serial number  
5 60/056,431, filed on August 25, 1997.

#### Field of the Invention

This invention relates to a plastic utility pole which breaks on impact by an  
automobile, to decrease the likelihood of injury or property damage.

#### Background of the Invention

Utility poles line many streets throughout the United States. These poles are  
typically made from trees, and the lower portions of the poles which are set in the  
ground are treated with a substance such as creosote to inhibit rotting and water and  
insect damage. There are numerous problems associated with such utility poles. For  
one, the poles are extremely rigid, and contribute greatly to bodily injury and  
property damage caused when vehicles strike the poles. Also, these poles use  
relatively large trees, which are more and more scarce, and could be used for other  
applications. Additionally, the trees often must be transported great distances, adding  
to their cost. Another consideration is the length of the poles, which makes their

transport even more difficult. Finally, the creosote from the poles can enter the ground and cause pollution.

### Summary of the Invention

It is therefore an object of this invention to provide a utility pole which decreases the likelihood and occurrence of bodily injury and property damage when struck by a vehicle.

It is a further object of this invention to provide such a utility pole which uses recycled material, particularly plastic.

It is a further object of this invention to provide such a utility pole which is extremely long-lasting and is not subject to decay, water or insect damage, or fire damage.

It is a further object of this invention to provide such a utility pole which does not contribute to pollution in the ground.

It is a further object of this invention to provide such a utility pole which is easy to transport and install.

It is a further object of this invention to provide such a utility pole which does not deplete forest resources.

It is a further object of this invention to provide such a utility pole which does not have to be transported great distances.

This invention results from the realization that such a utility pole can be made

by fabricating the pole from plastic material, in a number of separate sections which are fit together on site to form the pole, and in which the section just above the ground and up to a height which could be struck by a vehicle, is made to be relatively weak when subjected to an impact, so that the pole will break and thus inhibit bodily injury and property damage.

#### Brief Description of the Drawings

Other objects, features and advantages will occur to those skilled in the art from the following description of the preferred embodiments, and the accompanying drawings, in which:

Fig. 1 is a cross-sectional view of a preferred embodiment of the utility pole of this invention;

Fig. 2 is an exploded view of the pole of Fig. 1;

Fig. 3 is a simplified, schematic view of three poles of Fig. 1, showing one pole with its intermediate portion broken away;

Fig. 4 is a cross sectional view of a preferred form of the intermediate portion of the utility pole of this invention;

Fig. 5 is a detailed, partial, cross-sectional view of one manner of securing two portions of the utility pole of this invention; and

Fig. 6 is an illustration of the need for the structure shown in Fig. 5.

## Description of the Preferred Embodiments

This invention may be accomplished in a breakaway utility pole which includes a first elongated pole portion buried in the ground and protruding therefrom, a second elongated pole portion interfitted into the first portion above the ground, and a means for hanging utility wires from the pole. Most or all of the pole is preferably made from a plastic material which can be extruded, such as recycled high density polyethylene.

A preferred embodiment of utility pole 2 of this invention is shown in Figures 1 and 2. Pole 2 includes first elongated pole portion 20 which is preferably a solid or substantially solid cylindrical plastic member with protruding male ends 21 and 22. Portion 20 is buried in the ground G such that it protrudes from the ground only slightly, perhaps 2 inches. This embodiment also includes optional steel point section 20 which assists the placement into the ground of portion 20, as described below.

Second elongated pole portion 40 is interfitted into portion 20 above the ground. Portion 40 is made to fracture or bend relatively easily when struck by a substantial force in the perpendicular direction indicated by arrow A. The force and the resulting action can be designed as desired. For example, portion 40 may be designed to fracture on impact by a car of average weight traveling at 20 miles per hour. This result is accomplished by a combination of materials and construction. In the embodiment shown in figures 1 and 2, portion 40 is an extruded cylindrical tube with an appropriate wall thickness to accomplish this result. The walls of portion

40 can have a desired, designed further weakness by including vertical fluting 70 shown in the cross-sectional view of alternative portion 40a, Fig. 4. Other equivalent means of creating a desired impact strength of portion 40 are encompassed within the scope of the invention. Portion 40 has a length which is sufficient to span most or all of the vertical height at which a utility pole might be struck by a car or truck, which is expected to be something on the order of 10 feet. Thus, when the pole is struck with sufficient force, portion 40 fractures, which inhibits personal injury and property damage.

Pole 2 also includes upper plastic portion 50 which is the wire bearing portion of the pole. Portion 50 is preferably a solid or substantially solid plastic member which can accept appropriate wire bearing hardware such as is well known in the art. Eyelet 60 accepts a cable which passes therethrough and to adjacent poles, shown in Fig. 6, which prevents portion 50 from falling to the ground if portion 40 is fractured. Such is shown in Fig. 3.

Portions 20, 40 and 50 can be interfitted by any convenient means which allows them to be assembled on site (or after production and before installation), and which allows the replacement of intermediate portion 40. In the preferred embodiment, such is accomplished with protruding male ends on portions 20 and 50 which fit into the hollow center of portion 40. Other means of accomplishing this result are also encompassed within the invention.

In situations in which the poles are not at the same height, for example with .



lower pole 100, Fig. 6, there must be included some means for maintaining the pole portions together when the pole is in tension. One solution is shown in Fig. 5, in which steel pin 11 is inserted through portions 20 and 40. Since pin 11 will tend to keep these portions together, it must be removable and replaceable in order to allow replacement of portion 40 if it is bent or broken.

The pole of Figures 1 and 2 may be erected as follows. Steel point 10 is interfitted to portion 20 by inserting protruding male end 21 into opening 12 in the top of point 10. Steel cap 30 with opening 31 which accepts male end 22 of portion 20, is placed over end 22 and sits on top surface 23 of portion 20. Cap 30 allows point 10 and portion 20 to be driven into the ground to the desired depth. Cap 30 is then removed, and can be reused for another installation. Portion 40 is then placed over end 22. Crown 50 has male end 51 which also fits in the center cavity of portion 40. Crown 50 can be interfitted into portion 40 either before or after portion 40 is placed over end 22 of portion 20. The utility wires are then hung from crown 50, and a cable is run from crown 50 to the adjacent poles.

Although specific features of this invention are shown in some drawings and not others, this is for convenience only as each feature may be combined with any or all of the other features in accordance with the invention.

Other embodiments will occur to those skilled in the art and are within the following claims:

What is claimed is:

Applicant: Armand Cote  
For: Breakaway Utility Pole

1. A breakaway utility pole for placement in the ground,  
comprising:  
a first elongated pole portion in the ground and partially protruding therefrom;  
a second elongated pole portion interfitted into said first portion above  
the ground; and  
means for hanging utility wires from said utility pole.

2. The breakaway utility pole of claim 1 in which said first and  
second portions are made of plastic.

3. The breakaway utility pole of claim 2 in which said second  
portion is substantially hollow.

4. The breakaway utility pole of claim 3 in which said second  
portion is generally annular in cross-section.

5. The breakaway utility pole of claim 1 in which said first portion  
includes at its upper end one part of a two-part male/female connector element.

6. The breakaway utility pole of claim 5 in which said second  
portion includes at its lower end the second part of said male/female connector  
element.

7. The breakaway utility pole of claim 6 in which said second  
portion further includes at its upper end one part of another two-part male/female

Applicant: Armand Cote  
For: Breakaway Utility Pole

connector element.

8. The breakaway utility pole of claim 7 further including a third pole portion having the second part of said another two-part male/female connector element.

5 9. The breakaway utility pole of claim 1 in which said means for hanging wires includes a third pole portion interfitted into said second pole portion at the upper end thereof.

10. The breakaway utility pole of claim 9 in which said first and third pole portions are substantially solid.

11. The breakaway utility pole of claim 9 in which said first, second and third pole portions are generally cylindrical.

12. The breakaway utility pole of claim 11 further including a pointed member into which said first pole portion fits.

Applicant: Armand Cote  
For: Breakaway Utility Pole

13. A breakaway utility pole, comprising:

a lower member embedded in the ground;

an intermediate generally cylindrical member interfitted into said lower member and protruding up; and

a top member interfitted into said intermediate member, and carrying utility wires;

wherein said intermediate member is a hollow plastic tube which fractures upon a relatively low impact from an automobile.

14. The breakaway utility pole of claim 13 in which said intermediate member is fluted along its length to weaken it so that it fractures more easily.

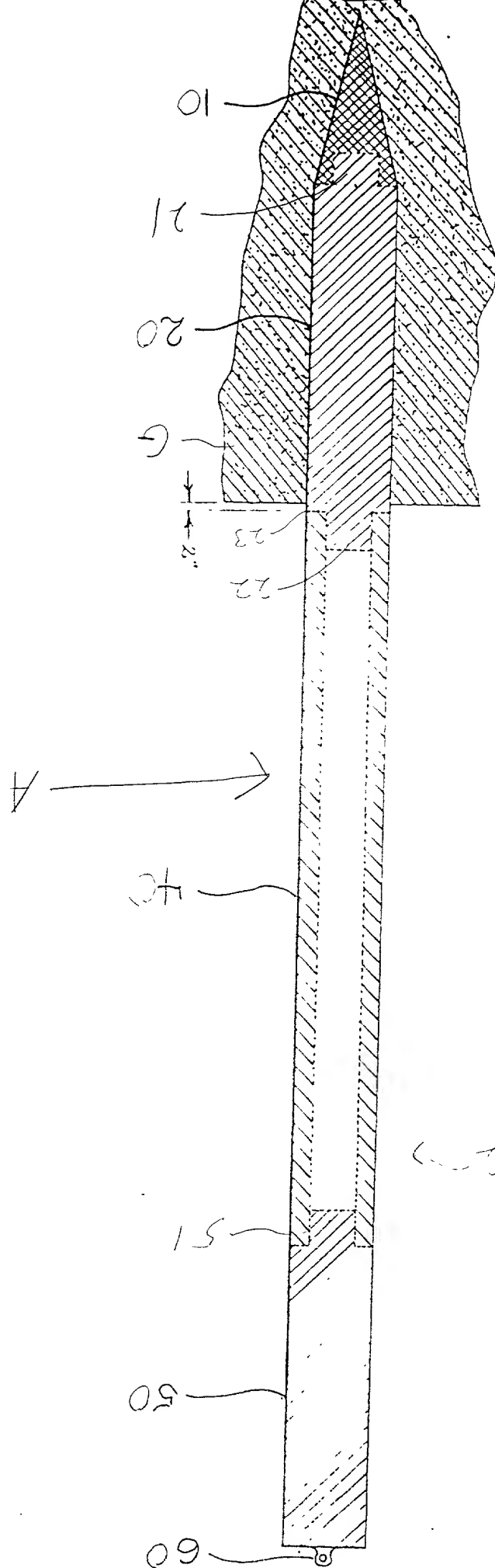
Applicant: Armand Cote  
For: Breakaway Utility Pole

Abstract of the Disclosure

A breakaway utility pole preferably made from plastic material. The pole includes a first portion buried in the ground and protruding therefrom. A second elongated portion is interfitted into the first portion above the ground, and is designed to fracture upon impact by a car or truck. The pole includes an upper portion, interfitted into the second portion, and which carries the utility wires. When the second portion is fractured, it can be removed and replaced.

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FIG. 1



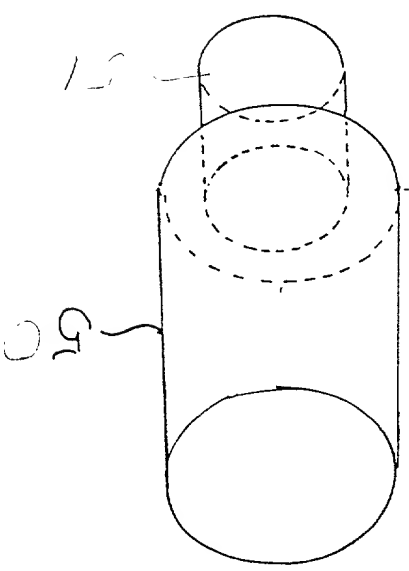
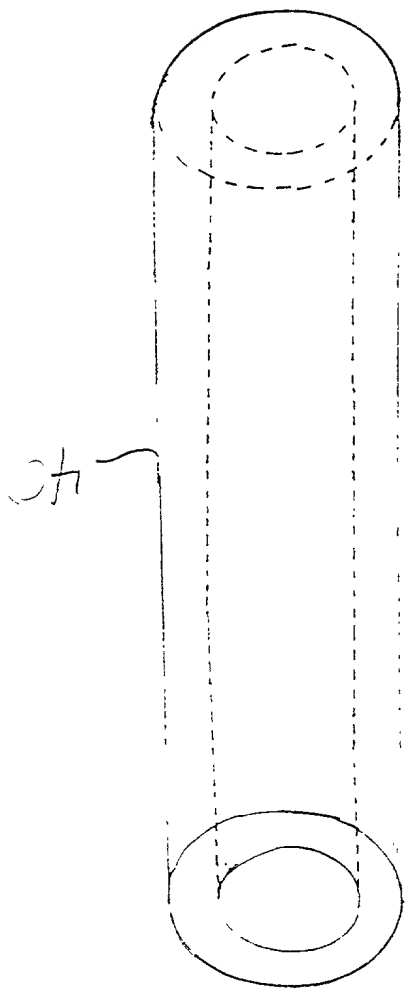
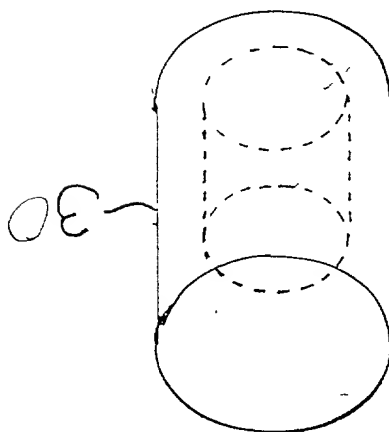
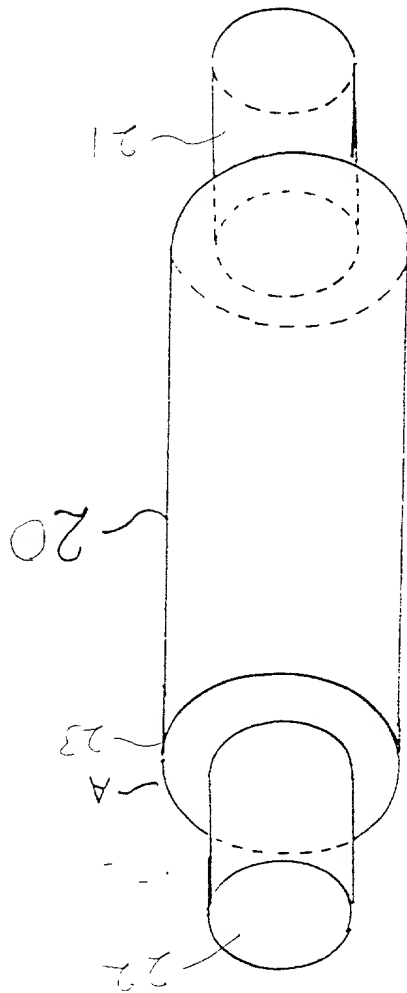
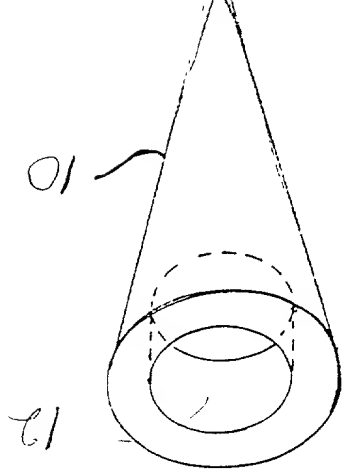
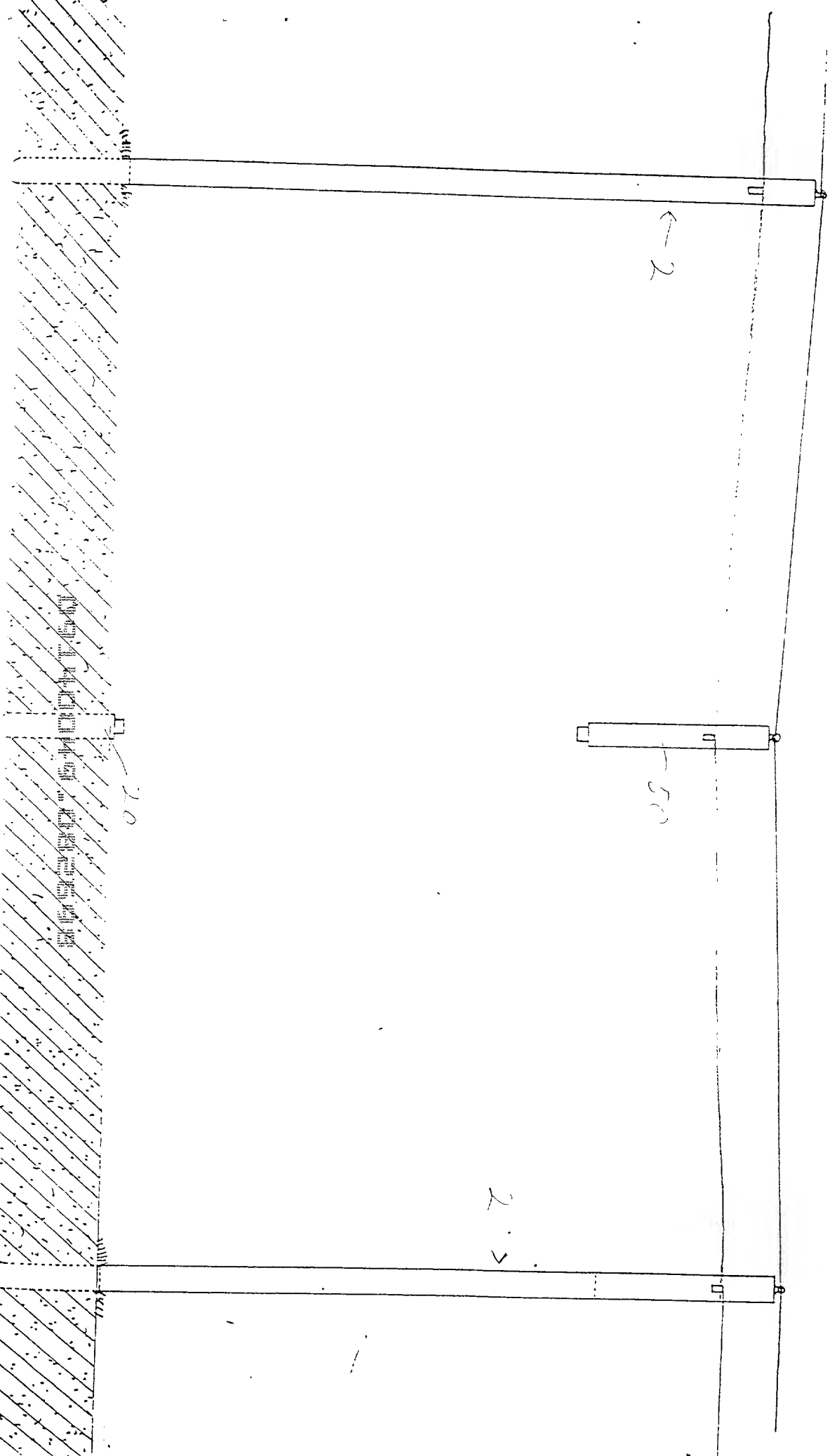


FIG 2

FIG 3





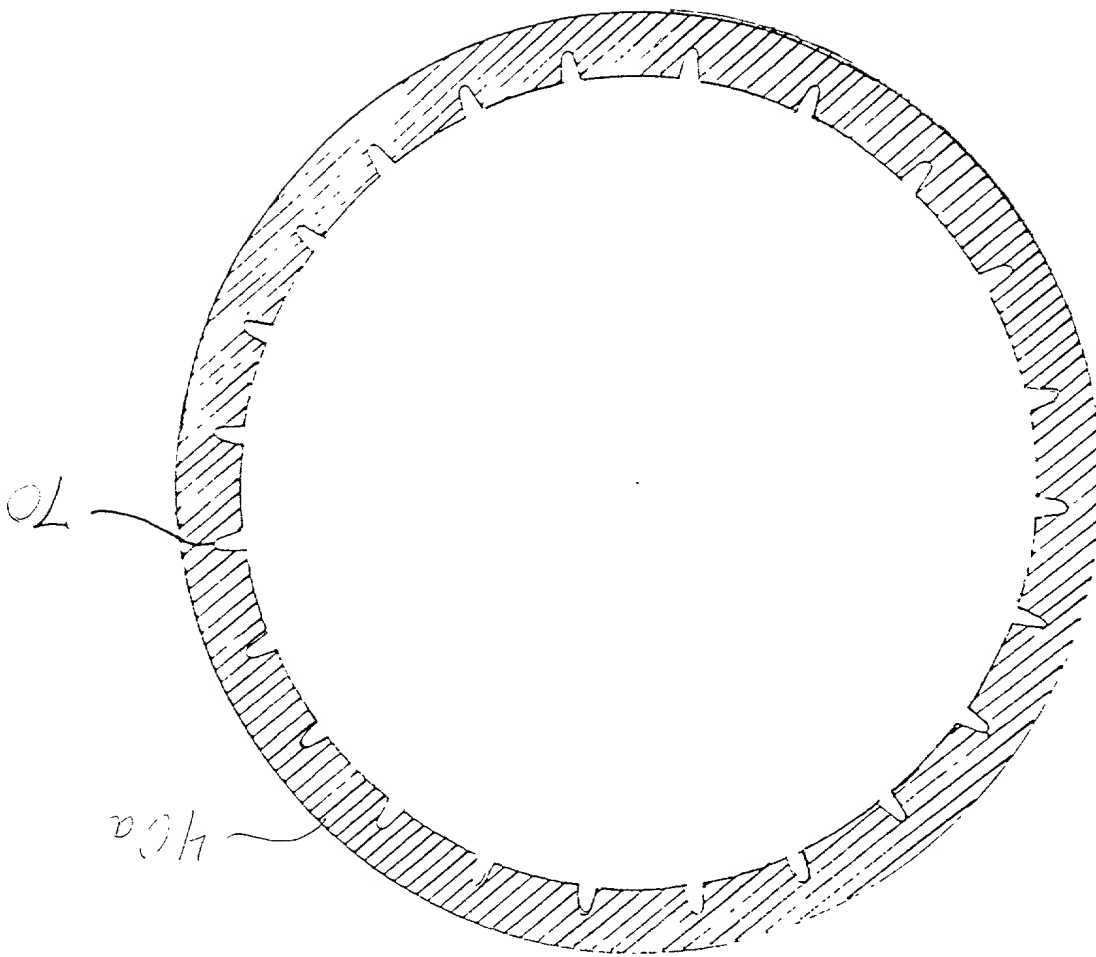


FIG. 4

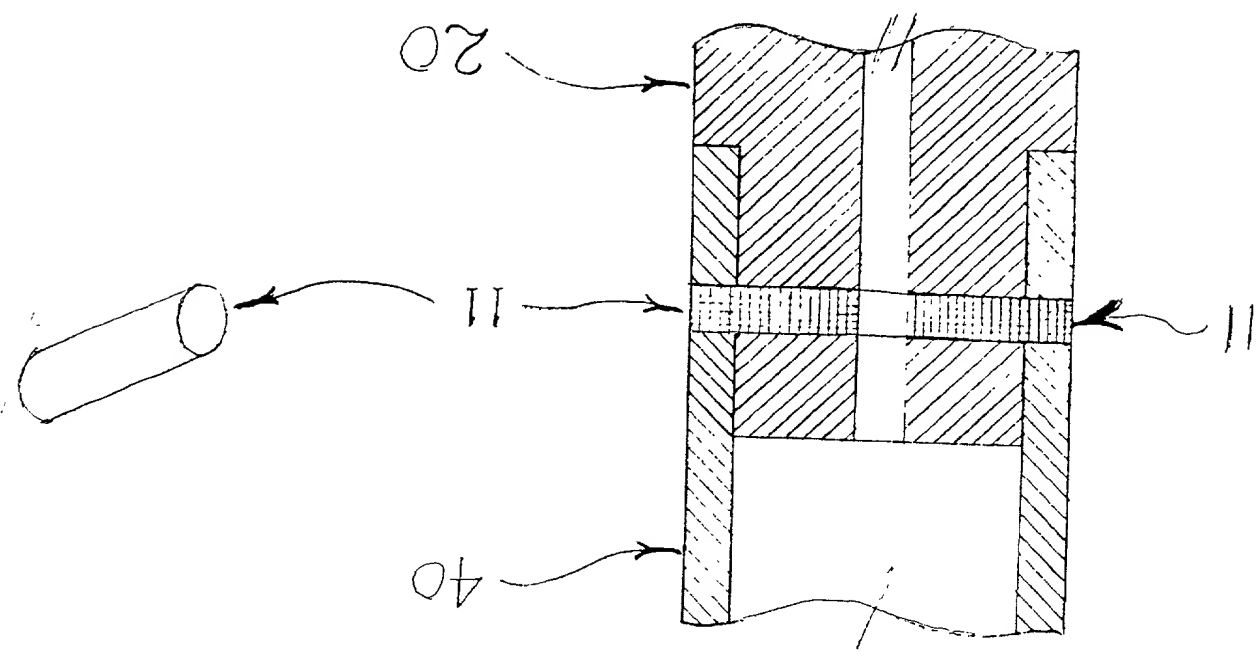


FIG. 13

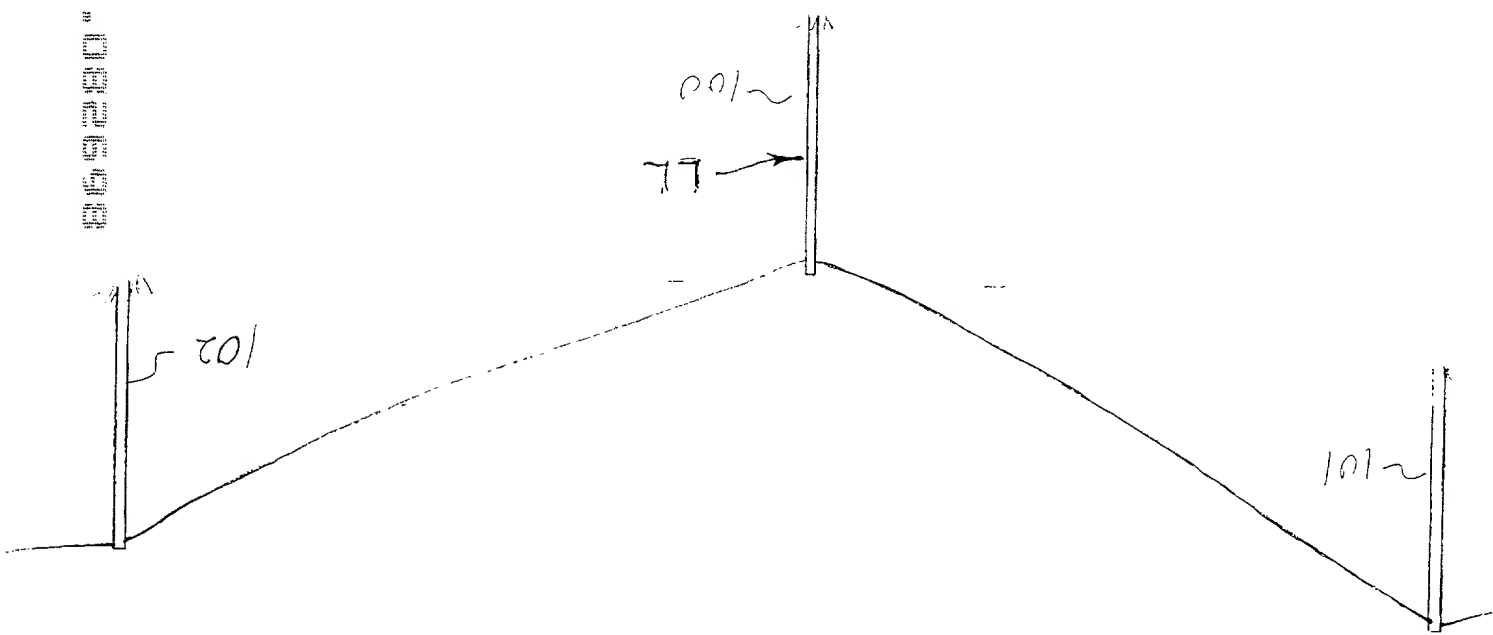


FIG. 12

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Applicant or Patentee: **Armand Cote**  
 Serial or Patent No:  
 Filed or Issued:  
 For: **Breakaway Utility Pole**

Attorney's  
 Docket No: **COTE/971/US**

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY  
 STATUS (37 CFR 1.9(F) AND 1.27(c)) - INDEPENDENT INVENTOR**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled Low Impact Breakaway Utility Pole described in

- ☒ the specification filed herewith  
☐ application serial no. \_\_\_\_\_, filed \_\_\_\_\_  
☐ patent no. \_\_\_\_\_, issued \_\_\_\_\_

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☐ no such person, concern or organization  
☐ persons, concerns or organizations listed below\*

\*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

Full Name \_\_\_\_\_  
 Address \_\_\_\_\_  
☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

Full Name \_\_\_\_\_  
 Address \_\_\_\_\_  
☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statement may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Armand Cote  
 Name of Inventor

  
 Signature of Inventor

8-25-98  
 Date

09140049-082698

**DECLARATION AND POWER OF ATTORNEY  
IN COPENDING APPLICATION  
CONTAINING ADDITIONAL SUBJECT MATTER**

I, Armand Cote, declare that I am a citizen of the United States of America; that I verily believe that I am the original, first and sole inventor or a joint venture (if plural inventors are named below) of the improvement in Low Impact Breakaway Utility Pole described and claimed in the specification attached hereto; that I have reviewed and understand the contents of the specification including the claims; that this application in part discloses and claims subject matter disclosed in my earlier filed application, 60/056,431, filed on August 25, 1997, that I acknowledge my duty to disclose information of which I am aware which is known to be material to patentability in accordance with 37 CFR 1.56, and to disclose such material of which I am aware which occurred between the filing date of the earlier application and the filing date of this continuation application: that, as to the subject matter of this application which is common to said earlier application, I do not know and do not believe the same was ever known or used in the United States of America before my invention thereof, or more than one year to said earlier application or in public use or on sale in the United States of America more than one year prior to said earlier application; that said common subject matter has not been patented or made the subject of an inventor's certificate issued before the date of said earlier application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to said earlier application; and that no application for patent or inventor's certificate on said invention has been filed by me or my representatives or assigns in any country foreign to the United States of America; that, as to the subject matter of this application which is not common to said earlier application, I do not know and do not believe that the same was ever known or used in the United States of America before my invention thereof or patented or described in any printed publication in any country before my invention thereof or more than one year prior to the date of this application, and that said subject matter has not been patented or made the subject of an inventor's certificate issued in any country foreign to the United States of America on an application filed by me or my legal representative or assigns more than twelve months prior to the date of


this application; and that no application for patent or inventor's certificate on said invention has been filed by me or my representatives or assigns in any country foreign to the United States of America.

As the named inventor, I hereby appoint Brian M. Dingman, Reg. No. 32,729, and Kevin S. Lemack, Reg. No. 32,579, as the attorney to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. Please send all correspondence and direct all telephone calls to:

Nields, Lemack & Dingman  
176 East Main Street, Suite 8  
Westborough, MA 01581  
(508) 898-1818

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

8-25-98  
Date

  
Armand Cote

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